

# REQUEST FOR PROPOSALS

## On-water Fish Removal System – Feasibility Study

Issued on June 19, 2000 by the  
**Salton Sea Authority**

Responses Due: July 19, 2000

## **1. GENERAL BACKGROUND**

The Salton Sea Authority, in conjunction with the Bureau of Reclamation, is undertaking efforts to improve conditions at the Salton Sea (Sea), California. Our restoration objectives are:

- Maintaining the Sea as a repository of agricultural drainage from the Imperial and Coachella Valleys
- Providing a safe, productive environment for resident and migratory birds and endangered species
- Restoring recreational uses
- Maintaining a viable sport fishery
- Providing opportunities for economic development along the shoreline

The Sea is located in the southeastern desert of California and spans Riverside and Imperial Counties. The closest cities include Coachella, Calipatria and Westmoreland. The Sea, having a surface elevation of approximately 227 feet below sea level, is situated in a closed basin. It is sustained by inflow of drainage from irrigated agriculture in both the Coachella Valley to the north and the Imperial Valley to the south and by flows from Mexico, which consist mostly of agricultural drainage and some municipal and industrial wastewater.

The Salton Sea Authority is a regional agency. It was formed as a Joint Powers Agency by the Coachella Valley Water District, the Imperial Irrigation District, the County of Riverside and the County of Imperial. Additional information about the Sea and restoration efforts is provided at [www.lc.usbr.gov](http://www.lc.usbr.gov).

## **2. FISH DIE-OFFS & SHORELINE CLEANUP**

The Salton Sea supports a large fish population. During the summer and winter seasons, die-off events can involve several million fish, the bulk of which are Tilapia, the most numerous of the four main species. Typically, the carcasses float upon the surface of the lake for some time before eventually sinking and decaying at the bottom. Many of the fish, however, are blown ashore to inundate beaches, harbors, channels and residential areas resulting in a very unpleasant odor and a shoreline unsuitable for the enjoyment of residents and visitors alike. Fish kills have been occurring at the Salton Sea for decades but it appears that the frequency and intensity has increased in the past few years. In the summer of 1999, one die-off event was estimated to involve 8.5 million fish.

In an effort to improve the condition of the shorelines and surface of the lake, the Authority wishes to explore on-water recovery and removal of the dead fish soon after a die-off event has occurred. There has not been any water-based activity of this sort conducted at the Salton Sea. At present, only the high use public beaches

of the State Park (north-east coast) have been regularly cleaned of fish debris by shore based efforts (manual labor, loader and dump truck).

### **3. SALTON SEA ENVIRONMENT**

Surface area:	365 sq. miles (approx. 35 miles long x 10-13 miles wide)
Elevation:	227 feet below sea level
Depth:	max. 51 feet / average 15-30' / many shallow areas
Salinity:	44,000 mg/l or 25% saltier than the Pacific Ocean
Winds:	high variability in direction & strength (area subject to sudden wind/sand storms and localized wind patterns)
Currents:	significant wind driven rotations recorded at .6 ft/sec
Sea states:	confused steep seas reported up to 15 feet
Air temperatures:	winter averages, lows 40-45F & highs 70-75F summer averages, lows 68-80F & highs 102-108F summer extreme highs 120F+
Water temps:	winter averages, 54-60F summer averages, 70-85F
Key fish species:	Tilapia, Orange-Mouthed Corvina, Gulf Croaker (Bairdiella) & Sargo
Winter die-offs:	Tilapia due to cold stress
Summer die-offs:	Predominantly Tilapia (occasionally Croaker & Corvina) due to rapid declines in dissolved oxygen levels caused, in part, by algal blooms

### **4. PLANNING PARAMETERS**

The following are simplifying assumptions for the purposes of scoping out the requirements and expectations of this feasibility study:

Total fish mortalities per year:	15 million
Average weight of fish:	1.2 lbs
Number of die-off events:	1 large summer event at 7 million 3 smaller summer events at 1 million 1 moderate winter event at 3 million 2 small winter events at 1million
Average float time:	3-14 days depending on environmental conditions
Location of die-offs:	anywhere within the Sea
Die-off configurations:	highly variable from dense accumulations to long uneven streaks

Anticipated steps in fish pickup and disposal

- Method for collecting the fish
- Loading and transporting on water
- Unloading at shore-side
- Temporary storage
- Transporting by land
- Disposal (the possibility of processing into useable product e.g. fertilizer exists but is outside of this scope of this assignment)

The Salton Sea fish die-off problems represent a unique situation for which no precedent has been found. The cleanup solution(s) will likely draw on expertise from a variety of areas including, but not limited to: commercial fishing, marine oil spill response/cleanup, waste management and general marine engineering/naval architecture.

## **5. SERVICES REQUIRED**

The purpose of the feasibility study is to help guide the Authority's (and other agencies') shoreline cleanup strategies. It is anticipated that such analysis would provide answers to the following types of questions:

- What type of vessels and systems would provide viable alternatives?
- Which configuration would best suit the unique conditions of the Salton Sea?
- What shore-side infrastructure would be needed to support this on-water effort?
- Which location(s) would be ideal?
- What disposal options are available for the recovered fish and which is recommended?
- What are the capital and on-going operational costs of such an operation?
- What are timeframes for implementation?
- What type of operational personnel are needed to safely and effectively run this type of activity?

If the Authority wished to pursue the developed program, what would be the recommended "pilot project" or starting point?

For the purposes of establishing equal assumptions, bidders should anticipate two fact finding trips to the Salton Sea as well as presenting recommendations to both the Salton Sea Authority's Technical Advisory Committee and Board of Directors (meetings held at separate times).

There is the possibility that additional services would be required beyond the feasibility study. The Authority reserves the right to further contract with a successful bidder.

## **6. SCHEDULE**

Completion of the study is desired within three months of the contract issuance. An early commencement is ideal so that on site data collection visits to the Sea could be done during the height of the summer die-off season.

## **7. SUBMITTAL REQUIREMENTS**

Responses are due on or before July 19, 2000 at 5:00 PM, to the following address:

Rob Renke, Project Management Consultant  
Salton Sea Authority  
78-401 Highway 111, Suite T  
La Quinta, California 92253-2066  
Phone (760) 564-4888  
Fax: (760) 564-5288  
[rrenke@salton-sea.dst.ca.us](mailto:rrenke@salton-sea.dst.ca.us)

Questions may be directed in writing (via fax or e-mail). All relevant questions and responses will be posted on the following website:

[http://www.lc.usbr.gov/~saltnsea/current\\_rfp.html](http://www.lc.usbr.gov/~saltnsea/current_rfp.html)

Please submit five (5) copies of your proposal on 8.5" x 11" paper (stapled not bound). The proposals should be no more than 8 pages, excluding appendices that may contain qualifications, resumes and promotional materials.

Proposals should generally be prepared in sections as follows:

- 1. Cover Page/Introduction/Understanding of the Project**
- 2. Experience**
  - Describe projects similar in scope/complexity that your firm has accomplished. Identify references and phone numbers for each project identified.
- 3. Qualifications**
  - Describe your firm's qualifications related to this project and identify key personnel and their relevant expertise.
  - Identify your firm's certifications or membership in any professional associations (naval architecture, marine engineering or other)
  - Acknowledge any relationship that you have with any major Salton Sea stakeholder/interest group. If there are no relationships, please state so.

**4. Innovation**

- Bidders may wish to submit brief (3 pages or less) comments or sketches demonstrating possible solutions to illustrate innovative ability and familiarity with this area.

**5. Costs**

- Prepare cost estimates with breakdowns: professional services, materials, travel and other items (include standard rate sheet if appropriate).

**6. Appendices**

**8. SELECTION PROCESS**

The Salton Sea Authority will use the following criteria in the selection process:

- Qualifications & Relevant Experience
- Responsiveness to this RFP
- Demonstrated innovation
- Availability to commence study
- Cost

Funding for this work program comes from a grant issued through the U.S. Environmental Protection Agency. The Authority encourages small, minority and women-owned businesses to submit proposals.

The Authority reserves the right, at its sole discretion, to reject any or all proposal(s) received as a result of this request, to negotiate with any qualified source, and to cancel in part or in its entirety this request for proposal. The receipt of proposals shall not in any way obligate the Authority to enter into a contract of any kind with any proposer(s). The Authority will not be responsible in any manner for the costs associated or incurred with the preparation and submission of the proposals.